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Commentary

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The Urban Papers

Municipal Finance and the Pattern of Urban Growth

Enid Slack

In this issue...

A proposal to structure municipal revenue-raising tools to support planning objectives.

The Study in Brief

Canada's rapid urbanization makes it necessary to achieve a balance between urban growth and the protection of farmland, open spaces, and environmentally sensitive areas. Many people believe that achieving this balance requires compact development, rather than urban sprawl, partly because the cost of providing municipal services is higher in low-density, outlying developments than in high-density developments within the central city.

Cities can and do use planning tools to influence the location, type, and density of development. But they should not ignore the significant potential impact of revenue-raising tools. At least, these tools should not encourage sprawl.

Yet empirical studies show that the property tax, Canadian local governments' main source of revenue, sometimes encourages low-density development. A regime that does not match property taxes with services received has the potential to reduce property improvements and the density of development and is likely to affect some decisions about business location.

User fees can be an effective tool for achieving a desired development pattern if they are correctly applied, which rarely occurs in Canada. Development charges also have the potential to encourage the efficient use of land and infrastructure. They must, however, be structured to reflect the full costs and benefits of development. In the absence of such charges, developers consider only their own costs and benefits, not the impact on the city's costs of providing services. Even a charge applied uniformly across the city can encourage inefficiency: developments that impose higher municipal costs (usually developments on the fringes) end up being subsidized by those that incur lower costs (usually developments in existing, high-density neighborhoods).

Overall, cities should remove distortions in the property tax system, eliminating the overtaxation of apartments and commercial and industrial properties relative to single-family houses. And they should set user fees and development charges so they do not work against planning objectives.

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Cities across Canada are facing increasing and cross-cutting pressures as a result of rapid population growth. On the one hand, they need to accommodate the increased population by providing hard services, such as water, sewers, and roads, and soft services such as day care and policing, all of which municipal revenues must pay for. On the other hand, many citizens want to preserve open space, farmland, and natural resources that contribute to their quality of life. Achieving these goals can reduce the amount of municipal revenue available. Concepts such as "smart growth," "balanced growth management," and "sustainability" all reflect the desire to maintain a balance between growth pressures and protection of the environment.

Cities rely on a variety of revenue sources to finance municipal services. On the operating side of the budget, by far the largest source is the property tax. Cities also charge user fees and receive some grants from provincial governments. The trend over the past decade has been toward the property tax, which has increased as a proportion of total municipal revenues, while provincial grants have fallen significantly and user fees have remained roughly the same (Kitchen 2000). On the capital side of the budget, cities use all of these revenue sources plus borrowing. In some provinces, cities also levy charges on developers to pay for growth-related capital costs.

The instruments cities use to raise revenues affect the nature and location of development. In some cases, municipal financial tools work in tandem with planning tools, but in other cases the two have opposite effects. For example, the application of some kinds of financial tools has the effect of increasing urban sprawl while planning tools are attempting to curb it. Yet relatively little has been written about how municipal revenue regimes can change the profitability of different types of development and influence the way in which a region develops.

This *Commentary* analyzes the impact of this phenomenon. Because of the current interest in a particular pattern of development — urban sprawl — the study begins with a brief discussion of the concept. Following is a review of the empirical evidence on how the costs of services vary with the location, type, and density of development. The next part examines the impact on urban spatial structure of three commonly used financing tools: property taxes, user fees, and development charges. Next comes a consideration of four financing tools less commonly used in Canada: site-value taxes, land-value capture taxes, tax increment financing districts, and municipal fuel taxes. The final part is a brief conclusion.

The Concept of Urban Sprawl

Urban sprawl has become an important policy issue in both Canada and the United States. It is receiving much attention not only because it is a characteristic of urban form in North American cities but also because it raises issues of sustainability: how to accommodate future growth, how to pay for it, and how to minimize the negative impact on natural resources.

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Although the literature offers various definitions of *sprawl*, it is generally characterized by relatively low-density development that "expands in an unlimited and non-contiguous (leapfrog) way outward from the solidly built-up core of a metropolitan area" (TTCRP 1998, 6).[1] Another aspect is the spatial segregation of land uses: as residential development (single-family housing scattered in outlying areas), nonresidential development (shopping centers, retail strips, warehouses, and industrial and office parks[2]), and institutional development (schools, municipal offices, and so on) are separated from each other. Sprawl consumes exurban agricultural lands as well as environmentally sensitive areas. Finally, one of its key characteristics is its forcing almost total reliance on the automobile as a means of getting around for business and recreation.

Sprawl is the result of rapid urbanization that has moved outward from the downtown core, technological advances that permit decentralized employment, the perception that the suburbs are cleaner, safer, less congested, and cheaper places to live, and the desire to escape from the costs of poverty, including its potential impact on property values.[3] Sprawl is also the result of land-use policies and financing decisions that have provided incentives for low-density developments outside the urban core.

Opponents of sprawl argue that it results in an unattractive and inefficient use of urban land and resources; requires excessive infrastructure costs to extend water, sewers, and roads to remote areas; affects the need to travel, the time spent commuting, and access to employment; increases congestion and pollution; imposes costs on the young, the elderly, and low-income households who cannot drive (or cannot afford to); and results in the loss of farmland, green space, and environmentally sensitive areas (see Blais 2000).

Urban sprawl has implications for a region's quality of life and the state of the environment as well as its economic competitiveness.

Urban sprawl has implications for a region's quality of life and the state of the environment as well as its economic competitiveness. The GTA [Greater Toronto Area] Task Force report (1996) argues that a compact urban form (the opposite of sprawl) provides a critical competitive advantage to cities because of its beneficial effect on both the cost of infrastructure and the quality of life enjoyed by residents.

Sprawl does, however, have its proponents. They say that compact development constrains consumers to live in housing that they do not prefer. The argument is that people demand housing further away from existing development because they can be further away from congestion and the social and fiscal problems of the inner city (see TCRF 1998, 2). The benefits of sprawl include cheaper housing, more private open space, shorter commuting time for people who live and work in the suburbs, and easier access to public open space (Downs 1999, 962). Those who defend sprawl suggest that it is simply a market response on the part of developers and that the market allocates land resources in the most efficient way. Since housing development is an important source of economic growth, it should not be restricted.

Another argument in favor sprawl is that *leapfrog development* (development that skips over vacant land) does not cost more in the long run because it may

1 For a more complete description of the characteristics of urban sprawl see TCRP 1998.

2 The contribution of these nonresidential activities to urban sprawl should not be overlooked, although it often is in the literature.

3 The escape from poverty is described in Orfield (1997).

raise infill densities over time. The studies that support sprawl do not, however, generally address the higher municipal and environmental costs associated with it.

From an economic perspective, the conflict between the two views of sprawl hinges on different interpretations of how the market operates. The proponents of sprawl seem to suggest that the market works efficiently and provides people with what they want in terms of type and location of housing; government intervention results in inefficient development patterns and should be avoided.

Opponents of sprawl, on the other hand, imply that it stems from a distorted market. The literature describes at least three kinds of market failures that cause such distortions and have the potential to lead to excessive spatial expansion of cities (see Brueckner 2001, 153–154, and Downs 1999, 962–963, for a discussion of market failure). The first kind is negative externalities associated with highway congestion, which make the social cost higher than the private cost. Highway users consider only the private costs of automobiles — fuel, depreciation, license fees, and their own time. If highway use were priced to reflect the marginal social cost (including the cost of construction and the external costs of pollution and congestion), fewer people would drive and more people would choose to live closer to where they work.[4]

Second is the market's failure to take account of the social value of open space and agricultural land. Residents of low-density development do not pay the full social costs of removing land from open space and from agricultural or environmentally sensitive uses. (Downs 1999, 962). The market does not provide open spaces or protect agricultural land because it is too difficult to value these uses and to identify the beneficiaries.

Third, current fiscal arrangements result in an artificially low cost of development. Those who enjoy the benefits of sprawl do not pay the higher costs associated with this type of urban form. If residents and businesses in areas with relatively more expensive services are being subsidized by residents and businesses in areas with less expensive services, the resulting development pattern is inefficient.[5]

Whether one favors or opposes sprawl, it is important that residents and businesses who enjoy its benefits be aware of all of the costs associated with it and be required to pay them.

Opponents of sprawl argue that those who enjoy its benefits should pay the full private and social costs, including those for infrastructure, pollution and congestion, and the loss of open space.[6]

Whether one favors or opposes sprawl, it is important that residents and businesses who enjoy its benefits be aware of all of the costs associated with it and be required to pay them. The rest of this study looks at the extent to which municipal financial tools reflect the differential costs associated with alternative development patterns, and it analyzes the effect of these financial tools on urban growth patterns.

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4 Highway users do pay fuel taxes, which are part of the general revenues of the federal and provincial governments, but there is no direct relationship between the tax they pay and the cost of building the highway or the pollution and congestion costs drivers impose.

5 This market failure is caused by a fiscal distortion. It may also be caused by the inappropriate design of cost-sharing schemes. For example, where costs are shared over a large jurisdiction, the link between those paying for a service and those enjoying the benefits may be lost.

6 Of course, the extent to which sprawl is caused by market failures depends on the assumption that the land-use market works. As Downs (1999, 963) notes, however, there is no freely operating land-use market in the United States because most markets are characterized by local zoning and other regulations. The same can be said for Canada.

The Costs of Services and Urban Form

Analysts in both the United States and Canada have developed an extensive literature on the factors that influence the costs of municipal services. (For detailed summaries, see Marchand and Charland 1992; Altshuler and Gómez-Ibáñez 1993; Blais 1996; and TCRP 1998.) Although the data and methodology differ among studies, they generally come to the same conclusion: spatial factors do affect the costs of development and servicing. In particular, the density of the development and its location influence the costs of providing services.[7]

The density of the development and its location influence the costs of providing services.

Engineering studies provide estimates of the dollar costs of the infrastructure associated with different urban forms, usually by creating hypothetical settlements.[8] The services considered are generally hard services, such as local streets, sewage collection lines, water distribution pipes, storm drainage systems, and local schools. These studies suggest that higher development densities result in lower costs because much of the needed infrastructure — for example, sidewalks, roads, and water and sewer mains — is linearly related. The denser the neighborhood, the smaller the increment of development costs that these services represent. For water, for example, a pipe is laid down the center of the street, and individual service lines extend from the main to each building. Higher density neighborhoods have more dwelling units per kilometer of water main over which to spread the costs.[9]

US Studies

Studies of service costs go back to the 1950s (see, for example, Wheaton and Shussheim 1955; Isard and Coughlin 1957). The most famous of these studies, *The Costs of Sprawl*, comes from the Real Estate Research Corporation (1976) for the US Environmental Protection Agency. The analysts examine the impact on infrastructure and other costs for six hypothetical new communities of 10,000 dwelling units ranging from high density (19–20 units per acre) to intermediate density (three to four units per acre). The authors estimate that road and street systems cost 33 percent less to build and 51 percent less to maintain in a neighborhood of townhouses than in one of single-family conventional houses. The comparable figures for utilities (water, sewer, storm drainage, gas, electricity, and telephone and underground

7 Most of the studies reviewed here analyze the costs of hard services. When soft services (such as education and social services) are included, fiscal impact studies conclude that small, one- and two-bedroom high-rent multifamily housing (as well as office, industrial, warehouse, and retail properties) typically generate more in local tax revenues than they require in expenditures. This positive impact on municipalities is a consequence of these buildings' less-than-average demand for education and social services (see Black and Curtis 1993, 18).

8 Statistical analyses, on the other hand, look at aggregate data for several cities to determine the relationship between population density and service costs. Municipal expenditures, which are a function of population size, population density, and other variables, are used as a proxy for the cost of services. Unlike engineering studies, these analyses tend to show a positive relationship between densities and expenditures (see, for example, Brazer 1959; Bahl 1969; and Ladd 1999). This finding is not surprising given that statistical analyses explain a municipality's total expenditures and do not differentiate by areas within the city or by types of development. For this reason, engineering estimates are generally more appropriate.

9 In the case of high-rise buildings, however, it likely costs more to pump water to the higher floors.

cables) are 58 percent less to build and 30 percent less to maintain. Costs for other infrastructure, such as parks, public buildings, and schools, do not vary much across neighborhoods, however.

Despite a number of technical criticisms of *The Costs of Sprawl*,[10] it remains a seminal work in this field. Two further studies in the 1980s support its findings (see TCRP 1998, 15). Studying capital infrastructure requirements, Duncan et al. (1998) report that scattered development can be as much as 70 percent more costly than equivalent forms of compact development. Frank (1989) finds that, for roads, water, and sewers, contiguous development is 45 percent less expensive than leapfrog, far-out development.

Scattered development can be as much as 70 percent more costly than equivalent forms of compact development.

Studies of the impact of location on the costs of services show that increasing the distance from central infrastructure facilities (such as sewage treatment plants and waste disposal facilities) increases costs. Since lower-density developments are typically located further away from existing facilities, the density differential noted above tends to understate the cost differential.

Downing and Gustely (1977) estimate that the capital cost of more piping for water and for sewage and storm drainage adds about $500 per household for every mile away from the central plants.[11] Some authors argue, however, scattered, leapfrog development paves the way for higher-density infill development and thus that some of the costs attributed to leapfrogging will eventually be recouped. Under this scenario, the cost of sprawl is simply the cost of providing the infrastructure in advance of when it is needed. Peiser (1984), for example, estimates that the capital costs for infrastructure (roads, water, sewers, and drainage) are only 5 percent lower in a planned community than in an unplanned community.

Despite the dissenting views on the differential costs associated with different densities and location, a recent comprehensive review of the US literature (TCRP 1998, 50) concludes that analysts generally agree that density is linked to infrastructure costs. There is less agreement on the interrelationship of sprawl and infrastructure costs, but the study attributes this lack of consensus largely to a lack of agreement on how to define sprawl. As suggested earlier, the word encompasses more than low density.

Canadian Studies

Canadian studies offer greater consensus on the impact of different types of development on infrastructure costs. These studies find that compact urban development results in lower infrastructure costs (especially for water and sewers) and lower operating costs.

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10 See TCRP (1998, i). Critics argue, for example, that the analysis allows unit size and the number of occupants to vary across developments so that savings attributed to different community types derived more from smaller units and fewer people to service than from the absence of sprawl. Subsequent studies, however, confirm that both of these factors are relevant.

11 As Altshuler and Gómez-Ibáñez (1993, 73) note, Downing and Gustely's estimates may be somewhat overstated because they ignore potential economies of scale in both pipe sizes and central treatment plant. No one, however, compares the costs of rebuilding or retrofitting facilities with the costs of building on vacant land.

In a study on the GTA prepared for the Greater Toronto Coordinating Committee (GTCC), the IBI Group (1990) compares capital and operating costs for transportation, water supply, sanitary sewers, and solid waste disposal for three different development patterns: the spread model, the central concept, and the nodal scenario. These models differ in the spatial distribution of population and in employment within the GTA. New population is largely distributed outside existing built-up areas in the spread and nodal models but mostly stays within them in the central model.

The comparison of public service costs among these three models indicates no significant differences in capital costs for transportation but a variation of almost 20 percent in operating costs. The overall capital costs of utilities (trunk water and sewer systems and solid waste disposal) do, however, differ — on average, by more than 50 percent — with the central model having the lowest per capita costs and the spread model the highest.

If development patterns continue in the Toronto area as they have for the past 25 years, it will require about $55 billion of capital investment over the next quarter-century to build new road, sewer, and water networks, as well as another $14 billion in operating expenditures.

On the basis of revised estimates from the 1990 IBI study,[12] the GTA Task Force report (1996) concludes that, if development patterns continue in the Toronto area as they have for the past 25 years, it will require about $55 billion of capital investment over the next quarter-century to build new road, sewer, and water networks, as well as another $14 billion in operating expenditures. A more compact and efficient development pattern could, however, save an estimated $12.2 billion in capital costs over next 25 years — roughly 22 percent of the projected $55 billion capital investment required to sustain current development patterns.[13] This amount would translate into annual savings of approximately $500 million in capital and maintenance expenses alone. An additional $200 million could be saved in costs related to air pollution, health care, and the policing associated with automobile accidents. When lower congestion, parking, and land acquisition costs are factored in, the total cost savings to be realized by containing urban sprawl could average $1 billion annually over 25 years.

A study for the Canada Mortgage and Housing Corporation (Essiambre-Phillips-Desjardins et al. 1995) compares the costs of a conventional development and an alternative model of compact development. The conventional suburb is an existing 338-hectare site in Nepean (suburban Ottawa-Carleton). The alternative plan is hypothetical use of the same site with denser development and a broader mix of housing types and land uses. The analysis considers emplacement costs (first-time installation capital costs), replacement costs (the cost of replacing the infrastructure at the end of its useful life), and operating and maintenance costs for both the public and private sectors. The on-site costs were calculated and a portion of the costs of community services located off-site attributed to the development.

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12 The revised estimates show that, for those elements of urban infrastructure that are sensitive to urban form (hard services), the costs vary considerably among the three scenarios. Compared to the spread model, transportation and hard service costs are 29 percent lower under the central scenario and 18 percent lower under the nodal scenario.

13 The task force's estimates of savings from alternative development patterns are based on a review of the literature, analyses of comparative costs in the GTA, and updated cost estimates from the 1990 IBI study. This research confirms that the basic physical structure of the city region, or urban form, significantly affects the level of capital and operating costs of municipal infrastructure, as well as external costs related to pollution, traffic congestion, and land acquisition.

The study shows that the total life-cycle (75-year) cost of the alternative plan is 8.8 percent less than that of the conventional plan. More than 70 percent of the savings are public, attributable to increased density, which spreads costs over more units, and to the increase in land-use mix, which reduces the residential share of costs. The largest cost savings are for roads, followed by stormwater management, transit, water, policing, and sanitary sewers. Environmental and congestion costs are also lower.

Tools for Financing Services

Given the evidence that the cost of services increases directly with distance and inversely with the density of development, the most costly areas to service logically tend to be the outlying, low-density developments. If residents of the outlying areas are charged the higher marginal cost of services provided to them (the cost to society of the resources needed to produce an additional unit of the service) and residents of the central, more densely populated areas pay the lower marginal cost of services provided to them, the result should be an efficient pattern of development. Other ways of charging for services are not likely to result in efficient development patterns. If municipal financial tools favor less dense projects, for example, they may provide an incentive for sprawl.

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When benefits that accrue to a site are not fully charged to it, the difference is capitalized into land values. Just as taxes or charges may reduce property values, the provision of municipal services tends to raise them. Good local services make a city a more desirable place to live. Thus, better services increase the demand for properties in that city, pushing up property values. The increase from the services counteracts the decrease resulting from the tax or charge. If the charge matches the service benefits exactly, the two influences should offset each other and be neutral with respect to property value. If the service benefits exceed the amount charged to pay for them, land values increase. Similarly, if the charges exceed benefits, land values are lower.[14]

Effects on land values have an impact on development decisions. Downing (1973) analyzes the impact of undercharging for services on the conversion of fringe land to residential use. Focusing on land on the urban-rural fringe (where the current and best use is assumed to be agriculture), he considers the possibility of building single-family homes. In his example, the land is on the verge of being developed. Now suppose that the municipality is considering installing a new sewer system in the area, a service that increases the productivity of the land for residential but not agricultural use.

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14 Municipalities that rely on property taxes must consider a further possible effect. Suppose, for example, that a property owner is being undercharged relative to the value of services provided and that the differential is capitalized into higher property values. If the property tax is based on market value, it should increase as a result of higher property values. In this way, the property tax theoretically reduces the implicit subsidy to the property owner. The evidence on the extent of property tax capitalization is mixed, however. One Canadian empirical study (Chinloy 1978) finds no evidence of capitalization of residential property tax differentials into residential property values in London, Ontario. But Chandry-Shah (1989) reports that municipal expenditures and revenues have an impact on residential property values in Edmonton.

The effect on the decision to develop depends on how the sewer system is financed. If the plan is *marginal cost pricing* (the price equals the value of an additional unit to the consumer),[15] the marginal cost of the sewers equals the marginal benefit. The bid price of the land in residential use does not change, and the proposed sewer system has no impact on the decision to develop. If the plan is *average cost pricing* (total costs divided by the number of consumers), the marginal cost is less than the marginal benefit and the bid price of the land for residential use increases. The bid price for agricultural use, however, stays the same and the differential is capitalized into land values. Under this scenario, the residential use outbids the agriculture use, and the land is developed as single-family homes.

Other things being equal, a financing scheme that undercharges outlying areas results in increased property values in those areas. Undercharging in outlying areas can lead to premature residential development of fringe land. Similarly, overcharging central areas is likely to inhibit more dense developments. Charging for local services has the potential to be efficient but only if marginal cost pricing is used.

To understand how different municipal financing tools affect development patterns, we must determine how closely the financing tool approximates the marginal cost of the services provided. The following pages look at three municipal financing tools used by Canadian cities and considers their impact on development patterns.

Property Taxes

The property tax is levied on residential, commercial, and industrial properties. As noted earlier, it is Canadian local governments' main source of revenue, accounting for 57 percent of their revenues, on average, in 1998 (Kitchen 2000).

The base of the *property tax* is the assessed value of real property. Each province has legislation requiring that property be assessed for taxation on the basis of its *market value*, defined as the price that would be struck between a willing buyer and a willing seller in an arm's-length transaction. A property tax rate (or a series of rates by type of property) is applied to the assessed value of property to determine the taxes payable.

Density of Development

Higher property taxes provide an incentive for less-dense projects and lower densities mean that the city is likely to expand in a way that is socially inefficient.

In terms of the impact on the density of development, a property tax is expected to result in a reduction in density, other things being equal. Since the tax is levied on the assessed value of property (land and improvements), any investment that increases that (such as any improvement to the property, including an increase in the density) raises the assessed value and makes the property subject to a higher tax.[16] Higher property taxes provide an incentive for less-dense projects and lower densities mean that the city is likely to expand in a way that is socially inefficient (see Brueckner 2001, 162). In short, the property tax encourages undesirable sprawl.

15 The advantages of marginal cost pricing are further discussed below in the subsection on user fees.

16 Assuming, of course, that an increase in the value of the property is reflected in the value assessed for taxation purposes. This is not always the case, however.

Several empirical studies confirm that the property tax reduces the density of development. Some studies are based on analytical models, and others on simulation models. Nowlan reviews some of these studies (1994).

- Grieson (1974), using 1970 US data, finds that housing density would increase by 23 percent if a 3 percent property tax were replaced by a tax not related to property.
- Shoup (1978), using post-1945 data for Los Angeles office buildings, reports that a property tax at an annual average rate of 2 percent would reduce the optimal size of an average building by about 14 percent.
- Haurin (1981) finds that an increase in the property tax in one municipality not matched by increases in other, nearby municipalities would reduce the size of the municipality, its population, and the density of residential building.
- Steen (1987) concludes that moving from a head tax to a property tax would lead to reduced population density in the central city and to sprawl as the urban area moved outward into undeveloped land.

A recent survey of municipal planners, finance officers, and developers (Skaburskis and Tomalty 2000, 322) reports that, although most of those interviewed initially felt that property taxes have little or no impact on urban form, their answers to further questions suggest that the net result of such taxes is to encourage development decisions that result in lower-density development and more sprawl.

Service Differentials

To the extent that property tax differentials are matched by differences in expenditures on public services, theory suggests no distortionary impact on location or land use.

To the extent that property tax differentials are matched by differences in expenditures on public services, theory suggests no distortionary impact on location or land use. Although the property tax cannot be regarded as a direct user fee (individuals pay directly for the services they receive), some economists regard it as a tax the community pays for services that have collective benefits.[17] Thus, the property tax can be loosely considered a benefits tax to the extent that public services provided the owner of a property enhance its value and result in higher taxes on it.

If this matching of taxes and benefits does not occur, however, positive and negative subsidies arise, influencing the urban development pattern in a way that worsens it. Some taxpayers pay less for services than the benefits they receive and some pay more. Downing (1973) considers an example of a circular city with three zones decreasing in density from the center to the outlying area. His model assumes that property values (per average dwelling unit) are highest in the outlying area and decrease with movement toward the central area. (This assumption is based on US data in the 1970s and is not particularly applicable to Canadian cities today, where property values in the urban core of metropolitan areas are often higher than those in the suburban areas.)

Applying a property tax to property values in Downing's model yields taxes that are highest in the outlying area and decline toward the center. Suppose,

17 The debate over whether the property tax is a benefits tax or a capital tax can be found in articles such as Fischel (2001) and Zodrow (2001).

however, that property values are highest in the central core, as in many Canadian cities. If properties are assessed at market value, then those at the center pay relatively more than those in the outlying areas. Since the cost of services is relatively lower in the central area, the result is that properties there are overcharged and those in the outlying areas undercharged relative to what is economically efficient. Other things being equal, this property tax discourages development in the central areas.

In the case of the greater Toronto area, residential properties are, on average, more valuable in the central areas but are taxed relatively more heavily in the suburbs. At the same time, multiresidential, commercial, and industrial properties in Toronto pay much higher property taxes than similar properties in the suburbs.[18] This situation — higher-valued residential properties in the center with lower tax rates — means that, on average, residential properties in central areas pay relatively less tax for relatively lower-cost services and outlying, lower-density areas pay relatively more taxes for relatively more expensive services.[19]

Favorable Treatment of Residential Property

Provincial governments and municipalities can and do make a number of policy choices regarding the structure of the property tax. Differences exist in what is included and excluded from the tax base, how value is defined for different classes of property (for example, residential, farm, commercial, and industrial properties), what percentage of the value is taxable, and how effective tax rates vary within and between classes of property.

For example, the property tax system generally favors single-family residential property, largely for political reasons (see Kitchen 2000, 11; Kitchen and Slack 1993). In many provinces, the assessment process favors such property by assessing it at a lower percentage of market value than other property types. In some provinces, only a fraction of residential assessment is taxable. In many provinces, the tax rate is lower on single-family residential properties. Finally, property tax relief mechanisms exist in most provinces for residential homeowners (and sometimes for renters). Furthermore, in some provinces, municipalities levy an additional business-occupancy tax on nonresidential property; residential properties benefit to the extent that they do not pay this tax.

One can argue on benefit grounds for lower taxes on nonresidential property because these properties use fewer services than residential properties.

As Kitchen notes (2000, 11), the higher taxation of nonresidential property has little justification. Indeed, one can argue on benefit grounds for lower taxes on nonresidential property because these properties use fewer services than residential properties. For example, many nonresidential property owners provide their own

18 These differentials developed historically. Assessments in Toronto were frozen from 1954 to 1998. Over this period, residential properties increased in value more rapidly than nonresidential properties, but the freeze meant that these changes were not reflected in the assessment used for taxation. The result is that residential properties have been undertaxed in Toronto for several years. Assessments in other municipalities were less out of date. Recent property tax reform in Ontario means that all properties are assessed at market value, and municipalities are permitted to reduce the tax burden on nonresidential property classes relative to the residential class.

19 Of course, different municipalities may still hold similarly-valued properties that are paying different taxes, even though they are receiving similar services. Many smaller urban areas have found downtown commercial and industrial property values have fallen as a result of suburbanization.

Differentials in nonresidential property taxes across municipalities can distort business location decisions.

garbage collection, fire protection, and security services and thus do not use many services provided by the municipality.[20]

Differentials in nonresidential property taxes across municipalities can distort business location decisions. Studies of business location in the United States suggest that property taxes have a significant impact on the decision of where to locate within a region but not between regions. (For a review of these studies, see Slack 1994; and Kitchen and Slack 1993.) For example, for a business choosing whether to locate in the Toronto or the Buffalo area, property taxes are not an important factor. They do, however, influence the decision of a business that has decided to locate in the Toronto area.

These results are not surprising. For intermetropolitan location decisions, the important influences are market conditions, the availability and cost of a skilled labor force, the presence of production materials, proximity to markets, and the quality of life. If property taxes account for a relatively small proportion of the firm's total costs, any reduction in that tax is unlikely to be large enough to initiate a relocation decision or to encourage significant business activity. Intrametropolitan location decisions, on the other hand, may be affected by property tax differentials. Within a large metropolitan area, market conditions and cost variables tend to be reasonably uniform. It follows that lower property taxes in one community generate lower costs at the margin and higher profits for businesses that locate there.

To the extent that property taxes are a factor in business location decisions, sprawl can result from their being higher in the center of a metropolitan area than in the fringe. But this conclusion assumes that people follow jobs within a metropolitan area, and Dye and McGuire (2000) could not confirm it with data on more than a hundred of the largest metropolitan areas in the United States over a 20-year period. They relate measures of sprawl to variables that characterized government structure, local finances, and schools. Their findings show that the number of school districts and the property tax differentials between the core and the suburbs have little or no effect on sprawl. What is positively associated with sprawl, however, is the number of municipalities within an urban area. The explanation is that municipalities can tailor their zoning legislation to make their jurisdictions fit the diverse tastes of the population (ibid., 1903).

The taxation of nonresidential properties also has implications for tax exporting. Property taxes do not equal service benefits where municipalities tax "non-local" properties, such as those owned by businesses providing products or services that are sold to nonresidents in a market that allows the tax to be shifted forward onto the consumer (see Stocker 1973, 192). In this example, the tax is exported to buyers who live outside the municipality. The result of this tax exporting is that the residents who choose expenditure levels are not fully paying for them. They are, in essence, receiving a matching grant from residents and businesses of other municipalities. This situation is inequitable because municipalities that can export a large proportion of their nonresidential taxes can levy relatively lower tax rates on residential properties. It also distorts development patterns because property taxes paid locally are not related to the benefits received locally.

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20 For a discussion of the benefits received from municipal services by nonresidential properties, see Kitchen and Slack (1993).

The extent of property-tax exporting in Canada is reported in Thirsk (1982). Ballentine and Thirsk (1980) estimate that an average of about 56 percent of nonresidential property taxes is exported from the nation's cities to other jurisdictions. This tax exporting tends to be particularly high on properties such as railroads and public utilities, as well as on industrial properties.

Other Property Tax Differentials

Other discrepancies can and do exist in property tax systems. For example, most provinces use that system as part of a more general policy of protecting farmland. A common method is to assess farms at their value in current use, rather than at the market value that reflects the highest and best use. In other words, the value of farmland is determined by the price it would sell for if it continues to be a farm. Neither alternative uses of the land, nor its speculative value are considered in determining value. Other ways of favoring farms include providing exemptions for part or all of the property, lowering tax rates on them, and providing farm tax rebates. In Ontario, for example, legislation requires that farms (and managed forests) be taxed at 25 percent of the rate on residential property. Farmland pending development can be taxed at increasing rates throughout the development process.

To the extent that lower taxes are levied on low-density, single-family homes, such a system discourages investment in apartment buildings (other things being equal) and reduces the density of development.

Apartment buildings are overtaxed relative to single-family homes under the current tax systems in some provinces. To the extent that lower taxes are levied on low-density, single-family homes, such a system discourages investment in apartment buildings (other things being equal) and reduces the density of development.[21] Moreover, the property tax system generally does not differentiate among types of single-family homes — for example, single detached houses, semidetached houses, and townhouses are treated alike.

Special Assessments

Before leaving the discussion of the property tax, we should look at a separate levy for specific services in specific neighborhoods. *Special assessments* (or "local improvement charges"), used in a number of Canadian cities, are compulsory charges imposed on residential, commercial, and industrial properties to pay for additions or improvements to existing capital facilities that border on those properties. The most frequent uses are to pay for paving or repaving streets, installing or replacing water mains or sewers, constructing sidewalks, and providing street lights.

To apportion the costs among the abutting properties, tax authorities use different methods, including front footages (the most common method), area of the lots, and the assessed value of the benefiting properties. In some cases, all properties within a particular zone are charged. Sometimes the authorities attempt to tax the value of

21 In Ontario, municipalities can use an optional property class for new multiresidential properties. If they do, the tax rate on new multiresidential properties has to equal the tax rate on single-family residential properties for a period of eight years. Some developers argue that the eight-year provision is not long enough, given the exigencies of long-term financing. For this reason, the Ontario government intends to increase the period to 25 or 30 years.

the capital spending's benefits to the property owners; the benefits are measured by the increase in property value resulting from the capital investment.[22]

Although special assessments and local improvement levies are not as efficient as user fees based on marginal cost pricing (because the charge is not directly related to the use of the service), they more closely approximate benefit taxes than does the property tax. Many public works increase the value of nearby land, providing a financial benefit to the owners. With a special assessment, the municipality constructs the works and then recoups the cost from the properties that directly benefit from the government expenditure.

Summary

This section suggests that, other things being equal, property taxes not matched by service benefits have the potential to discourage development, reduce property improvements, building size, and the number of buildings, reduce the density of development; and likely affect business location decisions within metropolitan areas.

What is not clear, however, is how much the property tax actually influences land use decisions. As Stocker notes, there is a fair bit of agreement on the direction of the impact but "not much evidence on the strength" (1973, 188). Furthermore, there is no consensus on what is a rational pattern of urban growth. Perhaps all that can be done from a policy perspective is to reduce the distorting effects of property taxes by making them more closely related to the benefits received from municipal services.

User Fees

Local governments across Canada impose *user fees* (a per unit charge for goods or services provided by government) for services such as water, sewers, transit, garbage collection, recreation facilities, parking, and homes for the aged. User fees account for about 20 percent of municipal revenues, on average, across Canada, and this percentage has remained fairly stable over the past decade (Kitchen 2000, 3).

User fees for local public services ration services to those who are willing to pay for them, and they act as signals for local governments' determining the quantity and quality of services to provide.

Economists argue that such direct charges for local public services have many efficiency advantages. They ration services to those who are willing to pay for them, and they act as signals for local governments' determining the quantity and quality of services to provide.[23]

User fees promote efficiency in the consumption of goods and services only if the price equals the marginal cost of providing the service. If the price is greater than the marginal cost, society values an additional unit of the good by an amount that exceeds its cost and would gain by producing more of it. If the price is less than the marginal cost, society values the good less than its cost and would gain by producing less of it.

Some authors claim that user fees can improve the pattern of urban development. Downing (1973) compares the impact of different charging mechanisms on the

22 Charges of this nature are often referred to as "land value capture taxes" or "betterment levies," which are further discussed below.

23 For a more detailed discussion of the advantages of user charges, see Kitchen (2000) and Bird and Tsiopoulos (1997).

development of urban land. His analysis is based on estimates of the costs of sewer service in a hypothetical city of 100,000 people. (The example could equally apply to other services.) By assumption, the city is entirely residential and to be developed at three densities decreasing from the center outward. In his example, costs increase as density decreases. If marginal cost pricing is used as the basis for charging for sewer services in this hypothetical example, each consumer pays exactly the marginal cost of serving her property and neither receives a subsidy nor subsidizes others. If, however, the charge is based on an estimated average of the marginal costs, property owners in outlying areas (where costs are relatively high) would pay less than the marginal cost of the service, receiving a subsidy. Those in the central, high-density area pay more than the marginal cost, in effect subsidizing the use of services by others.

Although pricing could be a useful tool in achieving desired development patterns, it is rarely applied correctly in Canadian cities (see Kitchen 2000, 12). More common is average cost pricing. One reason cities seldom use marginal cost pricing is that they are more concerned about charging user fees to raise revenues than they are about setting prices that can result in more efficient use of services or more efficient land-use patterns. There is also political resistance to charging fees because they look like another tax. Furthermore, calculating the marginal or incremental cost of providing a service is more difficult than calculating the average cost, and cities often do not have sufficient information on costs to estimate the marginal cost.

Development Charges

Municipalities in Canada historically have required developers to provide or pay for on-site services such as streets, street lighting, sidewalks, and other public facilities within a subdivision. (Agreements between the municipality and developer require that the developer take responsibility for providing or funding these services to meet municipal specifications as a condition of subdivision approval.) More recently, municipalities have extended developers' responsibility to pay for off-site costs associated with new development.

Today, local governments levy *development charges* (sometimes called "development cost charges," "development cost levies," "development levies," "off-site levies," or "assessment levies") to cover the growth-related capital costs associated with new development (or, in some cases, redevelopment). These charges provide a municipality revenues to finance infrastructure needs arising from growth. Development charges are levied by local governments in British Columbia, Alberta, Saskatchewan, Ontario, and the Yukon and Northwest Territories.[24] Ontario is the only province with separate development charges legislation; in other provinces municipal or planning legislation contains the authority for development charges.

Development charges provide a municipality revenues to finance infrastructure needs arising from growth.

The distinction between on-site costs and off-site costs is important. Although most municipalities specify the on-site costs that developers must cover, not all

24 In Ontario, school boards can also levy such changes. For a review of the application of development charges by municipalities across Canada, see Slack (1994).

municipalities require payment for off-site costs. Some provinces dictate what municipalities may and may not demand.[25]

Development charges are generally levied for officially mandated programs, and the funds collected must be used to pay for the infrastructure necessitated by the development. The charges are usually structured according to a set of rules and they cannot be negotiated. Some of Ontario's rules give an indication of the restrictions involved. Local governments must calculate the need for the services to be financed by development charges, which depends on the forecast growth over the next ten-year period and the existence of excess capacity.

Future capital expenditures are specified for each category of expenditure, and the growth-related portion is determined. The calculation of the development charge cannot be based on a level of service that exceeds the average level of service provided in the municipality over the past ten years.[26] The estimated capital costs are reduced by an amount that reflects both a municipality's excess capacity and the benefit to existing development. Furthermore, legislation requires that the capital costs be reduced by 10 percent for infrastructure other than water supply, waste water, storm water drainage, services related to highways and electrical power, police and fire protection services.

In the geographic application of the development charge, a municipality can charge:

- all developments in the municipality for all services,
- part of the municipality for all services,
- different amounts in different municipal service areas to reflect cost differentials,[27] or
- a uniform charge across the municipality plus area-specific charges for specific services in specific areas.

The main rationale for development charges is simply that growth should pay for itself and not be a burden on existing taxpayers.

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Further Exactions

Other exactions, formal or informal, from the developer are not strictly development charges but may be part of the subdivision approval process. These include, for example, land dedications that require the developer to set aside land for roadways, other public works, school sites, or environmental reasons; parkland dedications

25 In Ontario, for example, the *Development Charges Act, 1997* restricts what charges can be levied more than earlier legislation did. Development charges can no longer be levied to pay for museums, theaters and art galleries, convention centers, parkland acquisition, hospitals, waste management, or city halls. In British Columbia, development cost charges are permitted only to finance sewers, water, parks, roads, and drainage, although separate legislation for Vancouver permits it to levy also for housing and day care centers.

26 The original legislation on development charges in Ontario permitted standards to be the highest achieved over the past ten years, rather than the average. The change was made in response to developers, who complained that they should not have to pay for gold-plated services that existing residents did not enjoy. Furthermore, the highest level of service in any given year often reflected excess capacity.

27 Although the legislation does not preclude marginal cost differentiation, it does not facilitate it.

(or a cash payment in lieu of); meeting conditions such as providing day care, preserving an historic building in return for "density bonusing" (permission to build to a higher density than permitted in the official plan); connection fees, which permit developers to buy into existing capacity of water and sewer facilities; and oversizing provisions (sometimes called "front-end financing") that require developers to provide more infrastructure than is required for their developments. In some oversizing cases, the municipality agrees to recover part of the costs from future benefiting owners on behalf of the developer.

Development Charges and Land Use

Development charges can be a useful tool in encouraging efficient land use and infrastructure use. To be efficient, however, the charges have to be structured to reflect the true costs of providing public services. Area-specific charges allow municipalities to vary the charge by areas of the city according to the different infrastructure costs each imposes.

The costs of services may vary by area for three reasons (see Tomalty and Skaburskis 1997):

- Developments' distances from major facilities may differ. A development far away from a water treatment plant, for example, may require an additional pumping station and should pay a higher development charge than a development near the treatment plant.
- Nodal or infill development may be able to use existing infrastructure. These types of development should pay lower charges than developments that require building new infrastructure.
- Service standards may differ among developments. Standards may be established on an area-wide basis to reflect different levels of efficiency in terms of per household water use, waste generation, automobile use, and so on.

Efficient land use requires that developments that impose higher infrastructure costs on the city pay higher charges than developments that impose lower costs.

Whatever the reason for the differential costs, efficient land use requires that developments that impose higher infrastructure costs on the city pay higher charges than developments that impose lower costs.

If the development charge reflects the full costs and benefits, private and social, of the development, then developers are likely to make efficient location choices. The charge is similar to a price for services rendered. In the absence of a development charge, the developer considers only the private costs and benefits of alternative locations, not the impact on the municipality's costs of providing services.

Within a municipality, developers compare the expected net return to development on various sites and first develop those sites that yield the highest return. Consider two sites, A and B, that are identical except that developing site A imposes higher infrastructure costs on the city. If these costs are funded by a uniform development charge, the share of the costs imposed on each of the two sites is the same, and the developer is thus indifferent to selecting site A or site B. If, on the other hand, the costs are funded by an area-specific charge that recognizes the higher costs on site A, then the developer chooses B, the lowest-cost site, first. Thus, area-specific development charges that reflect differential costs shift development from high-cost sites to more efficient lower-cost sites within the city.

Since the cost of services varies by the type and location of development, an efficient development charge must vary by the same characteristics. The evidence already cited indicates that providing some hard services (such as water) is more costly for low-density neighborhoods than for high-density neighborhoods. To be efficient, the development charge should be higher per unit for low-density developments than for high-density developments. Similarly, developments located close to existing services should pay less than those further away. Higher charges for developing land on the outer edges of a community can stimulate development in the inner city and reduce urban sprawl.

Higher charges for developing land on the outer edges of a community can stimulate development in the inner city and reduce urban sprawl.

Alternatively, a uniform charge levied across the city, regardless of variations in the actual cost of providing services, can be seen as encouraging sprawl.

Such a charge results in underpricing hard services in low-density neighborhoods and overpricing them in high-density neighborhoods. The likely outcome is overdevelopment of low-density housing and underdevelopment of high-density housing relative to what is economically efficient. A development charge that is the same amount per unit regardless of where the unit is located does not reflect the municipality's true costs and thus does not lead to efficient development decisions. In other words, uniform charge subsidizes inefficient uses of land — developments that impose higher costs are subsidized by developments that incur lower costs. When urban form and density are not fully factored into the development charge, a market distortion occurs, and inefficient allocation of resources often results (GTA Task Force 1996, 128).

Development charges in many urban areas of British Columbia are levied on a development-by-development basis, allowing the charge to vary by location. In Ontario, the use of marginal cost pricing or development-by-development charges is much less common. Instead, average cost pricing is generally applied. Within the GTA, however, development charges are much lower in Toronto than in the suburban municipalities. These lower charges reflect that the city already has infrastructure in place and that new developments or redevelopment do not require new infrastructure. This differential between city and suburbs is efficient overall, even though the different costs associated with locations within each municipality are not adequately reflected in the charge.

The Impact of Alternative Financing Tools

Having considered the three municipal financing tools most commonly used in Canada, we can briefly consider the effects on urban growth patterns of four other tools: site-value taxation, land-value capture taxation, tax increment financing districts (TIFs), and municipal fuel taxes. Although these revenue tools are not currently in widespread use across the country, some cities have considered or actually used each in some form and some are applied in US jurisdictions.

Site-Value Taxation

Site-value taxation is the taxation of the land only portion of the property; the assessment base excludes any improvements. First proposed by Henry George in 1879, this approach gave rise to the single-tax movement in the United States in the

1890s. Some Canadian jurisdictions have also used site-value taxation. For example, the western provinces taxed site value in the early 1900s, and some of them today tax land at a higher percentage of market value than improvements.

In general, relatively heavy taxation of the improvements portion of a property discourages more intensive uses, while relatively heavy taxation of the land portion encourages them. By increasing holding costs and discouraging speculation, site-value taxation places pressure on owners of undeveloped property to put their land to a more profitable use.

In principle, a site-value regime taxes the *location rents* (the returns from a particular location regardless of the improvements to the site). If we assume land is in *fixed supply* (the supply of land offered for development is unresponsive to price changes), the tax falls on landowners and cannot be shifted to others. Increased site-value taxes are capitalized into lower property values. If the land is already in its most profitable use, the site-value tax is neutral with respect to the landowner's decisions: no possible use of the land can reduce the tax. A move from a property tax (which discourages investment in building and improvements) to a site-value tax (which is neutral) leads to increased investment.

Site-value taxes are also neutral with respect to the intensity of land uses. Although use does not affect the tax liability, heavier taxation of land value increases the opportunity cost of holding a property vacant and encourages more intensive use. In other words, it encourages landowners to put their land to the highest and best use because doing so makes the tax a smaller proportion of the income from the property. Compared to a property tax, a site-value tax encourages more intensive use of land, including replacing deteriorating buildings with more profitable uses and reducing the speculative holding of vacant land.

Compared to a property tax, a site-value tax encourages more intensive use of land, including replacing deteriorating buildings with more profitable uses and reducing the speculative holding of vacant land.

A move to site-value taxation may be desirable in some cases but not in others. For example, the higher taxation of land in central areas increases the density of development; a site-value tax is more consistent with a policy of residential intensification than is a property tax. If a municipality taxes land value whether the property is developed or not, the owner is unlikely to hold land for speculative purposes because doing so is relatively expensive. Thus, a site-value tax brings undeveloped land in inner cities into use and reduces pressure to develop more remote greenfield sites.

On the other hand, a site-value tax greatly increases the difficulty of preserving open space and farmland on the urban fringe because, other things being equal, it speeds up development there. To preserve farmland and open space under a regime of site-value taxes, a municipality must enforce other planning regulations.[28]

Another issue arises from a move from a property tax system to a site-value system. The move shifts taxes from properties in suburban areas, where land values are lower, to properties in the downtown area, where land values are higher. This shift can discourage investment in downtown cores.

One final problem with site-value taxation has to do with its implementation. Accurate land valuation challenges assessors because urban real estate sales combine the value of land and improvements. Separating the two can be difficult.

28 For a description of the various planning tools that can be used, see GTSB (2000).

Land-Value Capture Taxes

Land value capture taxes (also called "land-value increment taxes," "betterment levies," and "valorization taxes") are levied to capture the increase in commercial value created as a result of a major public investment in infrastructure. This form of taxation is proposed in situations in which a municipality is contemplating a major infrastructure investment, such as a new subway. Other examples of possible uses include new highway exchanges, schools, parks, conservation areas, and any other public investment that increases the value of adjacent land. In all these cases, a tax or fee could be imposed on neighboring properties; the amount is usually sizable but levied over only a fairly brief period.

A large public investment, such as a subway, requires a capital outlay of billions of dollars immediately but no one can enjoy the benefits until several years in the future. When they arrive the benefits to the local government will consist largely of property tax revenues, and those to the private sector will be of potential profits. Increased demand for development along the subway line will permit property owners to increase rents. Furthermore, zoning changes (which often accompany investment in infrastructure) may permit increased densities on properties along the line, resulting in increased land values.

The public sector decision to construct a subway thus results in a windfall gain for the owners of nearby property. The subway increases demand for housing and offices on properties located near it. Given normal demand and supply conditions, the increased demand raises the prices of these properties. Through no effort on the part of private owners, the value of their property increases. To some extent, the increased densities and increased land values should be reflected in property tax revenues, if market value assessment is the base of the tax.

A land-value capture tax has been proposed as way for the public sector to tax some or all of the windfall gain that it has created. There are difficulties, however, in isolating the change in value produced by the subway construction from other market forces that affect land prices.

Land-value capture taxes and site-value taxes both tax location rents. The former are levied only on the portion of the increased value that is a direct result of the public investment. Site-value taxes, on the other hand, are also levied on increases in values that arise for other reasons, such as unique locational advantages. A land-value capture tax does not tax past increases in land values, which may have been paid for by new owners before the move to site-value taxes.

The land-value capture tax tends to encourage more intensive uses by making it less profitable for owners to withhold land for speculative purposes.

The land-value capture tax, like site-value taxes but unlike property taxes, does not penalize the development of unimproved land. It does, however, tend to encourage more intensive uses by making it less profitable for owners to withhold land for speculative purposes. The landowner probably either realizes the opportunity cost of holding the land vacant by putting it to more profitable use or sells it to someone who will. Overall, a land-value capture tax is likely to be more effective in increasing the intensity of land use than a site-value tax because the former is a large tax assessed over a short period of time.

One of the main problems with land-value capture taxes as with site-value taxes, is the difficulty of estimating the change in property values that arises from the public investment in infrastructure. In particular, it is necessary to isolate the impact of the public expenditure from other market forces that affect land prices.

Tax Increment Financing Districts (TIFs)

TIFs are designed to stimulate private investment in urban cores and to assist these areas in competing with outlying suburban and exurban areas.

Tax increment financing districts (TIFs) are a financing mechanism used by cities in the United States, but not currently in Canada, to revitalize blighted urban areas, generally in downtown areas. More than 40 US states have TIF enabling legislation. TIFs are designed to stimulate private investment in urban cores and to assist these areas in competing with outlying suburban and exurban areas. TIFs have been applied to downtown areas that need revitalization, to brownfield remediation,[29] and to the rehabilitation of deteriorating infrastructure.[30] TIF districts are widespread in the United States because there urban officials believe that revitalization can have a positive impact on urban quality of life and future tax revenue.[31]

A TIF generally works as follows:

- A TIF district is proposed on the basis of planning criteria and what is permitted in the enabling legislation. The geographic boundaries reflect the area that needs redevelopment.
- Public consultation is held, and a redevelopment plan is developed.
- Once the area has been given official status, the annual property tax revenue accruing to all taxing authorities within the district (the municipality, the county, school boards, and so on) is frozen at prerevitalization levels ("the base-level property taxes").
- For a period of time, generally 15 to 35 years, all or some portion of the tax generated above the base level accrues to be used for the redevelopment.
- Redevelopment is implemented usually by the private sector, under the auspices of a city board or a community redevelopment agency, which gets the use of the accruing tax revenue.
- To spur the redevelopment, the municipality undertakes infrastructure rehabilitation, land assembly, land write-downs, and other improvements. The source of financing for these front-end and periodic costs is usually municipal borrowing or bonds issued against expected incremental tax increases. In this way — lending on the basis of a district plan's expected tax increment — the plan is financed through a public offering.
- After the TIF period expires, tax revenues from the expanded assessment base again flow through the taxing authorities.

Within a TIF, developers may benefit from obtaining more appropriate or more affordable sites, but they are taxed at the same rate as other city landowners. In

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29 *Brownfields* are urban sites that are underutilized, often vacant, and sometimes contaminated. Because of their proximity to downtown areas where infrastructure is generally in place, brownfields hold a great deal of potential for redevelopment. The realization of this potential is hindered, however, by the cleanup costs of contaminated lands, the costs of upgrading or replacing existing but older infrastructure, and the possibility of liability. In many cases, traditional sources of private financing hesitate to invest in brownfield sites because of the risks associated with their redevelopment. Thus, despite the potential for future rewards, these lands often remain unused because of a lack of upfront redevelopment financing.

30 There is an extensive literature on TIFs in the United States. For a review, see, for example, Wassmer (1994), Anderson (1990), and Chapman (1998).

31 TIF districts in the United States are often the beneficiaries of federal and state grants and tax incentives. These additional sources of funds help to achieve the objective of revitalization.

other words, this scheme is not like *tax bonusing*, under which taxes are reduced or forgiven on a particular site. If the TIF achieves the results predicted, no funds will have been directly transferred from the government, and no tax dollars will have been transferred from one business to subsidize another. Dedication of TIF moneys gives decisionmakers in the private sector greater assurance that their investment will contribute to a revitalized district, thereby reducing their risk and uncertainty.

Critics of TIFs point to several problems, however (see Chapman 1998, 185–190). TIF spending may receive less public scrutiny than other spending by local governments. The district may not be able to generate the predicted tax revenues, and the resulting lack of funds can threaten efforts to revitalize the designated area. Some people argue that TIFs may merely accelerate development that would have occurred anyway. Other taxing authorities (such as school boards) resent the freezing of their property taxes at a time when they are experiencing growth in demand as a result of the revitalization. Finally, TIFs are criticized for targeting funds to a designated area at the expense of overall municipal growth or of areas on the periphery of the district.

If used to stimulate downtown redevelopment, TIFs could be a tool to discourage sprawl. It is not clear, however, the extent to which redevelopment would have occurred anyway.

Municipal Fuel Taxes

Many US jurisdictions levy fuel taxes, but they are fairly new to Canadian municipalities. Currently, the Greater Vancouver Regional District, Victoria, Calgary, Edmonton, and Montreal are able to levy a few cents per liter piggybacked on the provincial fuel tax (see Kitchen 2000, 20).[32] The revenues generated from these taxes are generally earmarked for local roads and transit services in those cities.

The revenues generated from municipal fuel taxes are generally earmarked for local roads and transit services in those cities.

The fuel tax, although not exactly like a user charge based on marginal cost, is generally viewed as a benefits-based tax. And it has considerable merit as a means of funding roads and transit. As for its impact on urban growth patterns, some analysts think that a tax on fuel discourages the use of automobiles, reduces the demand for commuting, and may increase the demand for more compact development (Nivola 1999, 84).

As noted earlier, a driver decides to make a road trip on the basis of the benefits and costs to him. He does not, however, consider the costs of constructing and maintaining the road or of the congestion and environmental damage imposed on other travelers and the population as a whole. The result is that some road trips are made in which the benefits to the traveler are less than the costs to society, and the amount of road use is not efficient. If road users were charged the full cost of their trip, including the costs imposed on others, then the resulting travel pattern would be efficient in the sense that all of the costs and benefits would be equated. The appropriate charge would reflect the marginal social cost of the trip.

Many analysts generally believe that automobile use is highly subsidized in North America, especially compared to European cities. For example, one estimate

32 The reason for the piggybacking is that the administrative costs of levying its own tax would be prohibitive for a municipality.

is that current user fees cover only about 60 percent of the costs spent to build, improve, and repair roads (ibid., 17). Taxpayers cover the remaining costs. The result is the overuse of roads compared to what is economically efficient.

A user charge on roads that reflected the marginal social cost of their use would make that use efficient. A share of the fuel tax for cities is not exactly the same as a direct user charge in the sense that it does not reflect the marginal social cost. It can, however, give cities sufficient funds to construct the roads and to provide a greater subsidy to public transit. It may also lower road use toward a more efficient level.

Conclusion

Rapid urbanization in Canada points to the need for growth management to achieve a balance between the pressure to provide services to support growth and the desire to protect farmland, open spaces, and environmentally sensitive areas.

Although the literature offers some debate over whether compact development or urban sprawl is better at achieving this balance, there appears to be considerable support for the idea that the cost of providing services is higher in low-density, outlying developments. To reduce the costs associated with development, it is therefore necessary to use both planning tools and financial tools.

Although analysts generally recognize that planning tools have an impact on the nature, type, and location of development within a municipality, the effect of municipal financial tools is less well understood. Yet their impact on urban growth patterns is significant and should not be ignored. If a municipality is interested in pursuing compact urban form, it must design its revenue-raising tools so that, at the very least, they do not discourage this form of development.

A combination of user fees based on marginal cost pricing and development charges levied on a development-by-development basis could encourage efficient land and infrastructure use and result in developments located closer to existing services. User charges should be based on the marginal cost of additional units of service from the infrastructure, and development charges on the marginal cost of extending infrastructure to new developments.

Although the policy implications for user fees are obvious — municipalities should rely on them more, and they should be based on marginal cost — history shows that they have neither increased in application by Canadian cities nor generally been applied correctly. Mechanisms for levying development charges that vary by location already exist. What is needed is for cities to recognize the advantages of area-specific over uniform development charges and to apply them.

Cities must recognize that their decisions on how to finance urban services and particularly on how they estimate the amount to be charged have an impact on the pattern of urban growth.

Property taxes should, at the very least, be neutral with respect to land-use decisions. Neutrality can generally be achieved by relating the tax more closely to the benefits received from municipal services by type of property and by location. Cities need to eliminate specific distortions in the current property tax system, such as the overtaxation of apartments and commercial and industrial properties relative to single-family homes.

Cities must recognize that their decisions on how to finance urban services and particularly on how they estimate the amount to be charged have an impact on the pattern of urban growth. Municipal financial tools should not be working against planning objectives and tools.

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